Occupational therapy, loneliness and social isolation : a thematic review of the literature

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Abstract:	Background Loneliness and social isolation are thought to have a negative impact on health and wellbeing. There is little literature that provides an explicit focus on loneliness and social isolation in occupational therapy practice. Aim To explore themes related to loneliness and social isolation in occupational therapy related literature and consider the implications for practice. Methods CINAHL, Medline, Pub Med, AMed, PsycINFO, TRIP Database, and Science direct and Web of science databases were used to identify articles pertaining to occupational therapy, loneliness and social isolation. Results 20 articles were included and three themes were identified: loneliness and social isolation are detrimental to health and wellbeing; factors associated with increased loneliness and social isolation; factors that protect against the impact of loneliness and social isolation. Conclusions and significance Loneliness and social isolation have a significant impact on the health and wellbeing of the people occupational therapists work with. Occupational therapy practice should include the recognition and assessment of loneliness and social isolation, and interventions to help reduce any impacts on health and wellbeing.

Title

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Conclusions and significance: Loneliness and social isolation have a significant impact on the health and wellbeing of the people occupational therapists work with. Occupational therapy practice should include the recognition and assessment of loneliness and social isolation, and interventions to help reduce any impacts on health and wellbeing.

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The Authors confirm that there is no conflict of interest

Ethics approval was not required for this study

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Keywords: Occupational therapy, loneliness, social isolation, literature review

Background

Loneliness and social isolation are associated with reduced health and wellbeing particularly in the older population (Age UK, 2012; World Health Organisation (WHO), 2017). Older people with functional limitations are also at greater risk of becoming lonely (Hawkley and Kocherginsky, 2017). Studies have found loneliness and social isolation may increase the likelihood of heart disease and stroke (Valtorta et al., 2016) and depression (Cacioppo et al., 2006). In short, loneliness is a growing public health threat (Lim and Holt-Lunstad, 2017).

The concepts of loneliness and social isolation are related, social isolation is a lack of social contact and loneliness is an unpleasant emotional state related to a lack of contact with others (Chana et al., 2016). It is important to differentiate between these two distinct concepts which may or may not be related, for example as some individuals may feel lonely but not be socially isolated. Interventions that tackle loneliness, such as befriending, mentoring and social groups, are thought to be most effective if they are flexible, individualised and collaborative (Windle, Francis and Coomber, 2011). Although tackling loneliness and social isolation is important for policy and practice, for example the new cross-government strategy to tackle loneliness and social isolation (Department for Digital, Culture, Media & Sport, 2018), there is a paucity of research evidence to support the effectiveness of interventions (Cattan et al., 2005).

Occupational science is the academic discipline that considers people as occupational beings (Yerxa, 2000) and is the knowledge base upon which the profession of occupational therapy is based. Occupational science considers what occupation is and the complex interplay between what people do and why. Key concepts within occupational science include those of occupational injustice, occupational imbalance, occupational deprivation and

occupational alienation, all of which can have a detrimental impact upon a person`s health and wellbeing (Creek, 2008) and can be closely linked to loneliness and social isolation. Occupational therapists promote health and wellbeing through working collaboratively with people to achieve occupational engagement and social participation (Stav et al., 2012; Turcotte et al., 2018). As occupational therapists work across health and social care they are uniquely placed to tackle loneliness and social isolation in individuals and communities (Royal College of Occupational Therapists (RCOT), 2015, 2016-2018, 2019).

The profession's most widely recognised models of practice however, do not explicitly explore loneliness and social isolation. The Model of Human Occupation (MOHO) (Kielhofner, 1980) does however, recognise that loneliness, depression or boredom can result from the potential disruption to occupations that occur as a consequence of the ageing process. The Canadian Model of Occupational Performance and Engagement (CMOP-e) (Townsend and Polatajko, 2007) adopts a person centred approach that could raise issues of isolation and similarly the Kawa Model (Iwama, 2006) might facilitate a dialogue around loneliness and social isolation. Some models do provide supportive prompts and questions through their assessment tools, for example, the Occupational Circumstances Assessment Interview and Rating Scale (OCAIRS) (Forsyth et al., 2005) and the Canadian Occupational Performance Measure (COPM) (Law et al., 1990). However, issues of loneliness and social isolation may not be explored in depth because the models do not prompt specific exploration.

Overall there is little literature that provides an explicit focus on loneliness and social isolation in occupational therapy practice. Kalina and Hinojosa (2016) developed a protocol for improving loneliness in people with multiple sclerosis and recommend further research to apply the framework to people with other conditions, whilst a literature review by Papageorgiou et al. (2016) found evidence to support a positive relationship between

occupations, participation and the prevention of social isolation in community dwelling older adults. A qualitative study by Chana et al., (2016) explored eight intermediate care team professionals' (including three occupational therapists') perceptions and experiences of managing loneliness in service users. Although the professionals viewed loneliness as an important issue they did not prioritise it in their practice due to factors such as high workloads, inadequate referral systems and a lack of close working with social and voluntary services. Given the lack of literature in the topic area, this review aims to explore themes related to loneliness and social isolation in occupational therapy related literature and consider the implications for practice.

Methods

Search strategy

Electronic databases CINAHL, Medline, Pub Med, AMed, PsycINFO, TRIP Database, Science direct, and Web of science were searched using the terms presented in Table 1.

Table 1: key search terms

Aloneness Or Lonel* Or Alienation Or Solitude Or Friendless Or Remoteness Or	And occupation* or Therapi* or Therapy*

Inclusion and exclusion criteria

Articles without full text, conference proceedings, systematic reviews, editorial reports, letters to the editor, case reports and studies where research participants were services providers and/or students were excluded. Studies were also excluded where ethical approval was not stated. Studies involving qualitative, quantitative and mixed methods research design, authored by occupational therapists, written in English and involving research participants who were, or had the potential to be, users of occupational therapy services were included in the review. Only studies published between July 2007 and February 2019 were included in this review.

Search outcomes

The study utilised the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines (Moher et al., 2009); figure 1 outlines the search outcomes.

1121 articles were identified following the initial search of the electronic data bases. Once duplicate records were removed, bibliographic details for the remaining articles (n=955) were stored in endnote. Five researchers were allocated a set number of articles to screen for inclusion in the review. This process involved the researcher reading the title, abstract, and key words from the bibliographic information and assessing the suitability for inclusion in the review based on the criteria. Following this 41 papers remained and these were read in full by the researchers. Where it was unclear from the reading whether a paper should be included in the review, group consensus was sought. From the data selection process 20 articles were included in the systematic review.

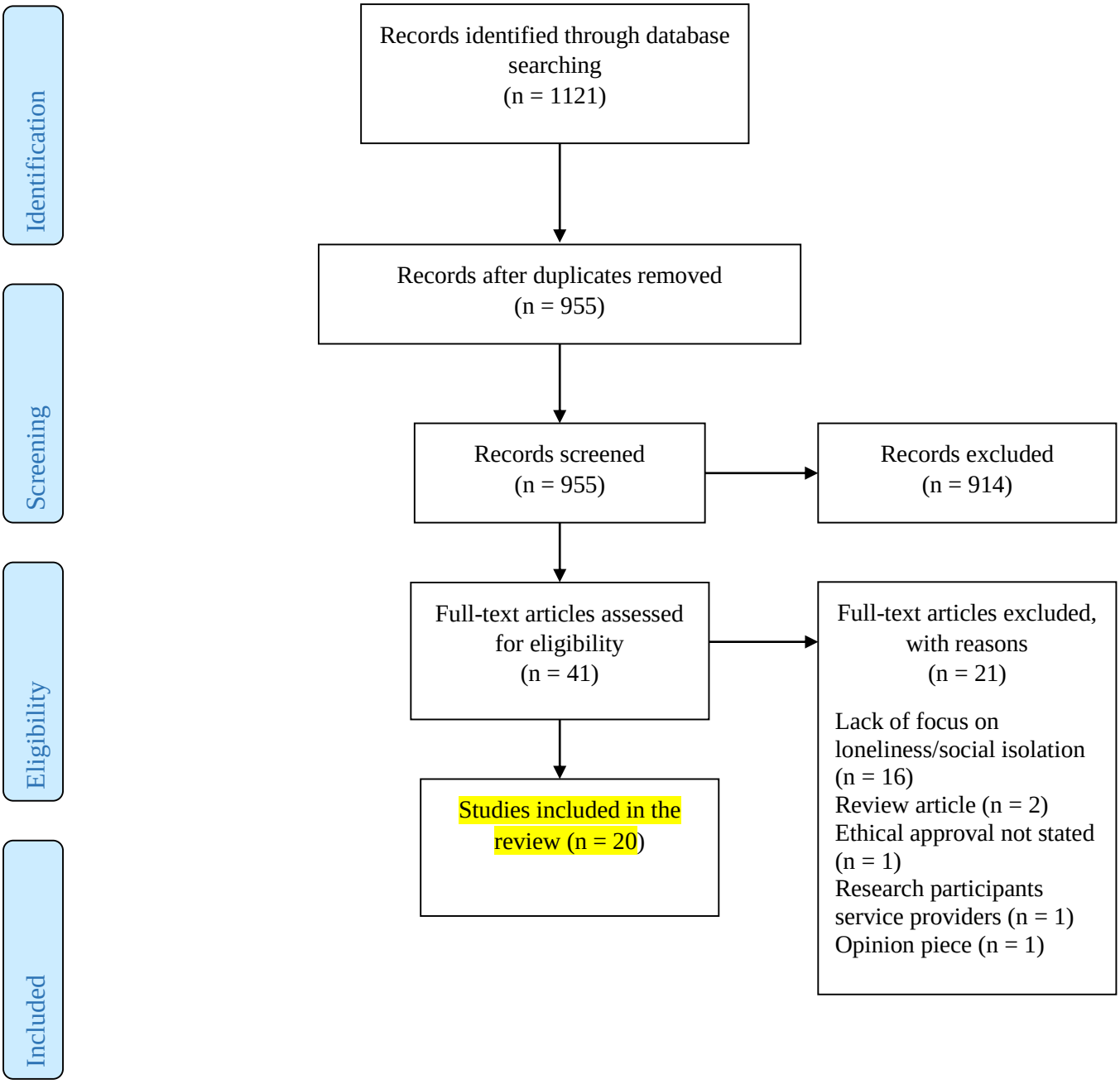

Figure 1: PRISMA 2009 Flow Diagram showing selection of articles for review

Data extraction and critical appraisal

Each of the 20 articles included in this review was read independently by two reviewers and appraised using the critical guides for qualitative and quantitative studies devised by Ryan et al. (2007) and Coughlan et al. (2007) to determine the strengths and limitations of each paper. Two reviewers independently generated a table, recording the key details of author; study aim and design; sample characteristics; key findings; and strengths and limitations of each article. One master table was then generated and a third reviewer verified the accuracy of the extracted data (Table 2).

Twelve qualitative papers are presented within the review. Studies that utilise such an approach are generally characterised by a smaller sample size, focus upon the individual perspective, and are therefore not easily generalisable to other similar populations (Moule and Hek, 2011). The majority of the qualitative studies used interviews for data collection, Makdisi et al. (2013) and Boland et al. (2019) utilised focus groups. Ashby et al. (2012) and Blanche et al. (2015) used observations. Stanley et al. (2017) used time diaries and Hanne et al. (2018) used photo-elicitation in addition to interviews as a means of data collection.

Seven quantitative and one mixed methodology study are presented. A quantitative approach generally provides quantifiable data on larger numbers of participants therefore offering a more generalisable perspective. Both standardised and non-standardised data collection tools were used and some studies used a mixture of both. Different standardised scales and measures specific to loneliness were used across the quantitative studies including, the Social Isolation Revised Loneliness Scale (Packer et al., 2012); the Loneliness and Social Dissatisfaction Questionnaire (Poulsen et al., 2007) and an adapted form of this measure (Poulsen et al., 2008); the Lubben Social Network Scale 6 (Taylor et al., 2016b; Hand et al., 2017), the Hughes 3-Item Loneliness Scale (Taylor et al., 2016b) and the Revised University

of California, Los Angeles Loneliness Scale (Hand et al, 2017). This variation in data collection tools could impact upon the comparison of findings (Moule and Hek, 2011).

Table 2: overview of included studies

Author and year of publication	Study aim and design	Sample characteristics	Key findings	Strengths / limitations
Qualitative articles				
Ashby, S., Fitzgerald, M., Raine, S. (2012)	To examine difficulties experienced by men with chronic low back pain in the maintenance of leisure activities and the connection between leisure and social networks. Ethnographic study Participant observation and semi-structured interviews. Thematic analysis.	11 working class men from New South Wales involved in a vocational rehabilitation programme aged 23 to 59 years. Unemployed 8 months to 7 years. All had chronic low back pain.	Chronic low back pain has a critical impact on leisure occupations. Barriers to engagement in leisure include physical and financial restrictions. These barriers led to reduced engagement in social networks.	Good ethical considerations. Reflexivity and triangulation used. Rich data from ethnography. Provides an occupational therapy perspective. Under researched topic. Unclear how many semi-structured and ethnographic interviews took place. Rationale for having two types of interview is not given. Small sample size limits generalisability. All working class men. Australian context.
Barclay, L., Lentin, P., Bourke-Taylor, H., McDonald, R. (2019)	To explore the experience of returning to community and social participation for people with NTSCI. Qualitative study using semi-structured interviews and thematic analysis.	17 participants living in the community with NTSCI, 8 women and 9 men. Average age at injury 55.8 years. Excluded people with brain injury / intellectual disability. Time since onset of	Three main stages emerged regarding return to community and social participation for people after NTSCI: Withdrawal includes staying home, loss of independence and social contacts /loneliness Re-emergence into society includes going out, finding new roles and	Includes questions from interview guide. Field notes were taken during and after interviews and reflective diaries were maintained. Peer review was maintained throughout the research process. An audit trail was maintained. Participant quotes supported themes. Consideration of the OT role in practice was presented. Purposive sampling was utilised

		injury ranged for less than 2 years (4 participants) to more than 10 (2 participants). There was a range of causes of NTSCI and a range of employment backgrounds.	social networks and Stability. OT`s can support people with NTSCI by use of achievable goal setting, activity analysis, environmental/activity modification and assistive technology.	There was a broad range in participant age, employment history, type and cause of injury and time lapse since injury which may impact findings. Member checking was modified in the form of a general newsletter. Reduced detail of the analytical process presented.
Blanche, E., Diaz, J., Barretto, T., Cermak, S. (2015)	To understand the caregiving experiences of Latino families of children with ASD. Descriptive qualitative design. In-depth semi-structured interviews. Thematic analysis.	15 Latino parents of children aged 3–8 years with ASD. 12 mothers, 3 fathers living in the USA.	Themes identified relate to: diagnosis, stigma, the role of mothers and utilising services. Stigma led to changes in social practices resulting in isolation. Many mothers stopped work, which may have increased isolation.	Ethical, detailed study. Four interviewers were bilingual and bicultural. Triangulation and reflexivity evident. Multiple analysis by researchers at stage 2. Sample largely female. Small sample size limits generalisability. Not all interviews recorded. Lacks clear description of initial coding scheme.
Boland, L., Bennett, K., Vuffe, S., Gleeson, N., Grant, C., Kennedy, J., Connolly, D. (2019)	To explore the perspectives of cancer survivors on the impact of the OptiMal intervention on their activities of daily living and their view of its value.	26 participants (predominantly women) aged between the ages of 18-80 (mean age 52.7. 17 participants had breast cancer. Recruited from	Themes identified include: Supporting transition to survivorship (sub themes: reduced support post treatment, support from peers, symptom management, adjustment to survivorship) and	Occupation focused intervention NVivo 10 and thematic analysis utilised Peer review of thematic analysis undertaken. Focus groups conducted by an independent party. Focus groups and interviews used the same question guide. Significant use of participant quotes.

	A qualitative descriptive design was utilised using focus groups and semi-structured interviews. Data was analysed using NVivo10 and thematic analysis were employed.	one oncology department in Ireland. Participants were between 3 months and 2 years post-cancer treatment.	Programme design and delivery (sub themes: groups cohesion and learning, length and content, goal setting, timing, recommendations)	Large age range. Does not state how many men were involved in the study just that is was predominantly women. The OptiMal tool is adapted from the Stanford Chronic Disease Self-Management Programme and therefore is not standardised. 3 months follow up for inclusion in the study is a short time period. At 3 months follow up after completion of the OptiMal, 6 participants were unable to attend the focus group and therefore took part in semi-structured interviews which could lead to bias. Data from 1 hospital in Ireland.
Goods, N., Millsteed, J. (2016)	To understand how ageing employees with disabilities perceive retirement, and change to occupational roles. Qualitative exploratory study. Semi structured interviews. Data analysis included NVivo 10.	10 participants; 6 men and 4 women aged 43-69 years. Moderate to severe disability reported. Worked for an Australian Disability Enterprise (due to retire in 2-3 years).	Participants anticipated retirement to be boring, meaningless and lonely. Concerns included: Loss of work-related friendships, limited networks, loss of finance which would impact on leisure.	Detailed, ethical, transparent. Interview guide piloted. Small scale Australian study limits generalisability. Participants were anticipating retirement rather than experiencing it. Seven participants lived alone which may have influenced results. Wide range of hours worked (8-38.5 per week) and time in setting (7-38 years).
Hanne, P., Nissen, N. Brandt, A., La Cour, K. (2018)	To gain a deeper understanding of perceived quality of life	9 participants from a previous cross sectional	4 elements of belonging were associated with quality of life:	Combined data collection techniques of interviews and photo-elicitation at two

	and belonging for people living at home with advanced cancer. A qualitative study using semi-structured interviews and photo-elicitation techniques. Data was analyzed thematically using an iterative process.	study of 73 participants. Age range 57-85 years, 4 men 5 women living at home or in sheltered housing with different types of cancer and estimated life expectancy of 4 months.	Social belonging with people participants felt close to, spatial belonging where participants may feel supported or isolated by the home environment, belonging through spiritual or existential contemplation and belonging through artefacts such as pictures, ornaments, letters and crafts.	different times may be considered as triangulation. Clear links between the foundation principles of occupational therapy as a profession and the aim of the study. Pilot study carried out prior to main data collection which generated modification to the questions asked. Presentation of participant quotes to support emergent themes. Audit trail and member checking was utilised. Peer review of themes was undertaken. Small convenience sample in the last few months of life may bias results and saturation not reached. Translation of participant quotes from Danish into English could negatively impact trustworthiness. A range of types of cancer were reported which may influence findings. Some participants lived alone whilst others lived with a spouse which may influence findings. Danish health and social setting may not translate to other cultures.
Makdisi, L., Blank, A., Bryant, W. (2013)	To explore what is helpful in the daily lives	13 people with experience of psychosis. 8 men	6 elements of the self were highlighted:	Detailed, transparent, ethical study. Service users involved in all aspects of the research.

	of people experiencing the effects of psychosis. Qualitative exploratory study. Participatory design Two focus groups. Data analysis based on grounded theory.	and 5 women aged 18-70 years from a range of ethnicities using adult mental health services within the preceding 5 years.	The social self, the occupational self and the integrated self were facilitators to living with psychosis. The unsupported self, the stigmatised self and the isolated self were barriers to living with psychosis.	Sensitive to the context of living with psychosis. Small sample size and single context limits generalisability.
Natterlund, B. (2010)	To describe the experiences of everyday activities and social support for people who are aphasic. Descriptive design. Qualitative interviews. Data analysis included NVivo2.	20 people with aphasia (14 men and 6 women) aged 32-70 years. Diagnosed with expressive aphasia for at least 2 years. Participants known to a specific rehabilitation centre.	Three themes identified: life situation today; social support in daily life; social life at present. Loneliness and social isolation are linked to aphasia.	Interviewer experienced in the field of aphasia. Detailed analysis of the data. Largely male sample in one Swedish setting limits generalisability. Interviewer known to three participants. Did not report the level of aphasia. Varied living arrangements may have influenced results. Range of years between diagnosis and interview was between 3-11 years.
Roy, L., Rousseau, J., Fortier, P. (2009)	To explore the competence and handicap-creating situations perceived by young adults with recent-onset schizophrenia in their	19 young adults with recent-onset schizophrenia aged 18-30 years. 16 male and 3 female. Experience of psychotic	Participants perceived more handicap-creating situations than competency situations in the roles of son / daughter and friend, and within education and work settings which	Analysis included three reviewers and peer debriefing. Use of reflexivity and data saturation. Largely male sample One Canadian setting limits generalisability. One interview not recorded.

	daily roles and activities. Multiple case study design using a questionnaire and semi-structured interviews. Data analysis included NVivo2.	symptoms for less than 5 years.	contributed to feelings of isolation.	Limited range of roles and activities were analysed. Perspectives of family, friends and clinicians not captured.
Siemon, J., Blenkhorn, L., Wilkins, S., O'Brien, K., Solomon, P. (2013)	To develop a theoretical model related to social participation from the perspective of older women living with HIV. To inform occupational therapy practice and enhance social participation. Grounded theory approach. Interviews (face to face or telephone) Data analysis included NVivo8.	20 women living with HIV aged 52-58 years (19 born female, 1 male-to-female transgendered). Participants varied in ethnicity, employment status and time since diagnosis (5–19 years).	Four concepts related to social participation emerged: social engagement; social isolation; contrasting perceptions and contextual influences. Social participation was shown to vary on a continuum from isolation to engagement.	Analysis conducted by multiple authors. Detailed, rigorous and ethical. Lack of theoretical sampling. Small Canadian sample limits generalisability. Varied interview method may have influenced findings. Participants recruited through known services which may influence results.
Stanley, M., Richard, A., Williams, S. (2017)	To explore the perspectives of older people regarding time spent alone. A qualitative descriptive design using semi-	12 participants aged between 66 and 92 years. 3 men and 9 women. All were community dwelling. 5 in retirement villages	3 key themes were generated: A matter of balance: participants reported that time alone can be positive and restorative yet a sense of connection	All researchers were qualified occupational therapists and so shared professional concepts. Prior to interview, participants were asked to keep a diary to prepare for the interview. Questions asked were based in the literature. A pilot interview was carried out.

	structured interviews and time diaries. Data was analysed thematically using an approach advised by Sandelowski (2000).	and 7 living independently in the community within a metropolitan area of Australia. Participants were recruited through an older people's service providers and researcher networks.	to others was important to mediate time alone. Keeping busy: engagement in meaningful occupations was important in managing time alone Night time: is the most difficult time to be alone and can increase feelings of loneliness.	A reflexive journal was utilised to support audit and understanding of the research process. Member checking was carried out. Participant's quotes supported themes. Small purposive sample size of 12 participants, mainly female and wide age range could lead to bias. Participants recruited through 1 care provider and researcher networks. Limited cultural and geographical diversity of participants. Australian health and social care setting.
Taylor, M., Marquis, R., Batten, R., Coall, D. (2016)	To explore the daily occupational role experiences of custodial grandparents and their mental well-being. Qualitative design within the symbolic interactionist tradition. Semi-structured interviews using a range of methods. Thematic analysis.	49 custodial grandparents (9 men and 38 women) aged 41-69 years recruited via three non-government organisations. Number of grandchildren cared for ranged from 1-5.	Four key themes emerged: grandparents negative states of mind; social isolation; psychological struggle and reaching for help. Custodial grandparents experience acute isolation and loneliness. Grandparent support groups were valued.	Piloted interview schedule. Analysis conducted by multiple authors. Remote living grandparents participated. Large sample size for qualitative study. Varied administration of interviews could impact results. Only 10% of transcripts checked against audiotapes.

Quantitative articles				
Hand, C., Retrum, J., Ware, G., Iwasaki, P., Moaalii, G., Main, D. (2017)	To describe dimensions of social isolation for older adults living in ethnically, socially and racially diverse urban settings and to examine factors such as income, family situation, health and transportation with social isolation. Data was collated from a cross sectional survey using a door to door community-based participatory approach within 5 demographically diverse neighbourhoods. Questions related to social isolation /connectedness, loneliness, satisfaction with frequency of social activities, demographic information, access to transportation and access to information.	164 surveys were completed from adults aged 50 and above living in the community. 62%female respondents.	24% of participants reported social isolation in relation to small social networks and wanted more social engagement. Participants aged 50-64 noted highest levels of isolation. Factors such as reduced health, finance, and reduced access to transport and information were linked to isolation.	Utilised a community-based participatory research approach to support inclusivity and relevance to the local community. Collaborative research approach with citizens. A range of validated measures were incorporated, the 6 item Lubben Social Network Scale-Abbreviated, Revised University of California, Los Angeles Loneliness Scale. Neighbourhoods were demographically diverse in terms of age, ethnicity, and economic perspective. Small sample size for a quantitative study. 62% of participants were women, 61% were aged 50-64, 54% were White/Caucasian and 84% usually could access places they wanted to go. All of this could introduce bias. Descriptive statistics provide a less detailed means of analysis. US context may not apply to other health and social care settings.

	Descriptive statistics were used to analyse the data.			
Orsmond, G., Shattuck, P., Cooper, B., Sterzing, P., Anderson, K. (2013)	To explore the rates of participation among young adults with ASD, how these rates compare to young adults with other types of disabilities and the personal/contextual factors associated with limited social participation. Data was extracted from the National Longitudinal Transition study-2 that collected data in 5 waves. Telephone surveys with parents/young adults. Descriptive and inferential statistics were used to compare groups.	620 young adults aged 21-25 years old with ASD, intellectual disability, emotional disturbance and learning disability (85% males, 15% female)	Young adults with an ASD were significantly more likely to never see friends, never get called by friends, never be invited to activities, and be socially isolated. Among those with ASD, lower conversational ability, lower functional skills, and living with a parent were predictors of reduced social participation.	Data collected from a large nationally representative US cohort study. No measures of the size or composition of friendship networks. No information about the participants' satisfaction with their social participation. Lack of data on the availability of services and activities. Largely white, male sample. Does not state how many parents/guardians versus young people were interviewed which may impact upon findings.
Packer, T., Boldy, D., Ghahari, S., Melling, L. Parsons, R., Osbourne, R. (2012)	To investigate the impact of generic and diabetes-specific self-management programmes.	458 participants. 236 with a generic chronic condition and 222 with diabetes.	GP referral was the least effective recruitment strategy to programmes. Participants on the two programmes differed	Ethically sound Reliable measures utilised. Attrition rate at post-test 25.3% and at follow-up 23.4%.

	Quasi-experimental design (pre-test/post-test) with 12-week follow-up to compare two programmes. Self-report questionnaires. Statistical analysis using SPSS 17 and SAS version 9.1, Chi-square and independent t-tests.	Ages ranged from 27-92 years.	significantly on most demographic variables and measures at baseline apart from social isolation. Both groups presented statistically significant improvements in self-management knowledge and skills. Neither group demonstrated improvements in health related quality of life or reduced social isolation and loneliness. Reduced social isolation was a significant predictor of improved self-efficacy and health related quality of life.	Results demonstrate that mechanisms for change are complex. Future analysis using structural equation modelling is needed to further understanding of how self-management programmes work.
Poulsen, A., Ziviani, J. Cuskelly, M., Smith, R. (2007)	To describe the psychosocial self-perceptions of loneliness and leisure participation for boys with and without DCD. Identify leisure activity participation contexts	60 boys with DCD and 113 boys without DCD aged 10-13 years. Boys were without Aboriginal or Torres Strait Islander heritage	Boys with DCD experienced greater loneliness than boys without DCD. Strong positive correlations were found between DCD and loneliness.	Authors experience in their field. Reliable measures used. Cross sectional design cannot test direction of effect. Non-representative sample. Retrospective 12-month leisure survey relies on parents' recall and perspective.

	associated with adaptive outcomes for boys with different levels of physical coordination. Investigate occupational performance processes related to physical coordination and loneliness. Exploratory cross sectional design with 4 groups of boys using set measures, leisure time dairies and a retrospective survey. Descriptive and inferential statistics to analyse results.	and were from middle to higher economic backgrounds.	Participation in social/physical activities was less for boys with DCD compared with boys without DCD. Team sports participation was the only activity context that significantly mediated the relationship between loneliness and physical coordination ability.	
Poulsen, A., Ziviani, J., Johnson, H., Cuskelly, M. (2008)	To test a model where links between child characteristics, intrinsic motivation to participate in leisure activities, leisure activity participation time use, and adjustment pathways are explored. Exploratory cross sectional design with	173 Australian-born primary school-aged boys aged 10-13 years. Boys were without Aboriginal or Torres Strait Islander heritage and were from middle to higher economic backgrounds.	A higher score on the motor ability variable was linked to a lower score on the total loneliness measure and a higher score on the life satisfaction measure. A higher score of motor ability was linked to a higher score on the perceived freedom of leisure measure.	Authors experience in their field. Reliable measures used. Participation in team sports may be influenced by other factors such as social/ environmental influences. Non-representative sample. Retrospective 12-month leisure survey relies on parents' recall and perspective. Does not specify which reports teachers completed.

	4 groups of boys using set measures, leisure dairies and a retrospective survey. Path analysis of data using AMOS to test theoretical model hypothesised.			
Pritchard, E., Barker, A., Day, L., Clemson, L., Brown, T., Haines, T. (2015)	To investigate factors that may impact on participation of older community dwelling adults with consideration of demographic, physical and mental health factors. Second phase of a cohort study. Cross-sectional design. Telephone interviews using a range of assessments and scales. Descriptive and inferential statistical analysis using STATA 11.2.	244 older adults living in the community in Australia aged 70-91 years. 60% female /40% male. 49% lived alone.	Most frequently performed activities were light housework, meal preparation and shopping. The most frequent recreation activities were gardening and walking. Higher levels of participation were associated with a lower age and more falls over the last 12 months. Older adults with higher levels of depression had lower levels of participation in household and recreation activities.	Clear and detailed article. Convenience sample may have contributed to bias. Inclusion criteria for speaking English may have contributed to bias. Retrospective self-report may lack accuracy.

Taylor, H., Herbers, S., Talisman, S., Morrow-Howell, N., (2016)	To test strategies to identify socially isolated residents in low-income senior housing via a self-report and staff-report. To compare the findings from these two strategies. Residents completed self-report scales related to social isolation and loneliness. Staff completed an online survey on their perception of isolation for all residents. Descriptive statistics were used to analyse results.	135 older residents living in a senior housing complex in the USA. 47 out of the 135 residents completed the interviews and scales.	Self-report by residents: 26% were deemed socially isolated by the LSNS-6. Staff-report on residents: 12% rated as having some or a lot of social isolation. Residents who participated in the interviews self-rated their social isolation higher than did staff. Residents with higher levels of staff-rated isolation were less likely to participate in the interviews.	The combination of staff reports of isolation and self-reports may be more informative than one report alone. The use of scales may help practitioners identify residents who may need social support. Few sample details are provided. Low response rate (35%) to self-report scales. Study conducted in one setting limits generalisability. Use of descriptive rather than inferential statistics. Financial incentive to take part. Results do not refer to the Hughes 3-item loneliness scale.
Mixed methodology articles				
Arthanat, S., Vroman, K., Lysack, C. (2016)	To ascertain the effectiveness and perceived value of an individualized home-based ICT programme for older adults.	13 older adults, 12 female and 1 male aged 62-83 years. Recruited through an Aging and Disability Research Centre.	A statistically significant increase in total ICT activities, particularly leisure. A modest but non-statistically significant trend was found in	The mixed methods provide multiple perspectives. The potential for mediating loneliness and isolation (via social media, chat rooms) was highlighted. Small mainly female sample.

	A mixed methods pilot study (precursor to a longitudinal RCT). Quasi-experimental repeated measures design. End of study questionnaire. Descriptive and inferential statistics (quantitative). Content analysis (qualitative).		activities involving social connections. Themes identified included: benefits such as learning from an ICT aware generation, and communicating with distant family. Challenges included: difficulties in using ICT and the need for more frequent home visits.	Limited generalisability. Participants were mostly healthy with a basic knowledge of ICT. Financial incentive to take part. Reference to a focus group in the methods but no further detail provided.

Results:

Study characteristics

Studies included in this review were published between 2007 and 2019 and the age of participants ranged from 10–92 years. Two studies were child specific (Poulsen et al., 2007, 2008), two related to young adults (Roy et al., 2009; Orsmond et al., 2013), four specified older people (Pritchard et al., 2015; Arthanat et al., 2016; Taylor et al., 2016a; Stanley et al. 2017), four included participants up to middle age (Ashby et al., 2012; Siemon et al., 2013; Blanche et al., 2015; Goods and Millsteed, 2016) and the remaining studies included adults over 18 including older people (Natturlund, 2010; Packer et al., 2012; Makdisi et al., 2013; Taylor et al., 2016b; Hand et al., 2017; Hanne et al., 2018; Boland et al., 2019; Barclay et al., 2019). Ten studies noted a predominance of male participants; nine a predominance of female participants and one did not specify participant gender. Studies were conducted in Australia (n = 8), the USA (n = 5), Canada (n = 3), the UK (n = 1), Ireland (n = 1), Sweden (n = 1) and Denmark (n = 1). Through thematic analysis of the articles based on the process outlined by Taylor, Kermode and Roberts (2006), a number of themes were identified by two of the authors and verified by a third author (Table 3).

Table 3: themes identified in the review

• **Loneliness and social isolation are detrimental to health and wellbeing**
• **Factors associated with increased loneliness and social isolation:** ○ Physical and Mental health conditions ○ Communication difficulties ○ Age ○ Stigma
• **Factors that protect against the impact of loneliness and social isolation:** ○ Finances ○ Social networks ○ Meaningful occupations and engagement ○ Services provider awareness of loneliness and/or social isolation

Loneliness and social isolation are detrimental to health and wellbeing:

From a review of the studies, it is apparent that loneliness and social isolation have a negative impact upon health and wellbeing. Packer et al. (2012) compared two self-management programmes and participants on both programmes demonstrated statistically significant improvements with regard to self-management knowledge and skills, yet no improvement in social isolation, loneliness or health related quality of life. Logistic regression from this study demonstrated that reduced social isolation was a significant predictor of increased quality of life.

Siemon et al. (2013) report on a sample of older women diagnosed with the Human Immunodeficiency Virus (HIV) where a reduction in mental health was associated with social isolation, and social isolation in custodial grandparents was associated with feelings such as

depression, anxiety, fatigue and anger (Taylor et al., 2016a). Similarly Pritchard et al. (2015) suggest that social isolation may be linked to depression and reduced participation in older adults, whilst Poulsen et al. (2008) found that boys with Developmental Co-ordination Disorder (DCD) who had a lower loneliness score were more likely to have an increased life satisfaction score.

Factors associated with increased loneliness and social isolation:

Physical and mental health conditions:

A number of physical health conditions are associated with loneliness and social isolation in this review. Ashby et al. (2012) refer to chronic low back pain in a small scale qualitative investigation of working class men in Australia. The consequences of pain included reduced employment, which restricted finances, limited social engagement and led to social isolation. The association between loneliness and physical health conditions is also reported by Packer et al. (2012). This may suggest that individuals who have a long term chronic health condition are vulnerable to social isolation, however, this study included more male than female participants and a wide age range (27–92 years) which may impact upon the generalisability of the findings.

The two Australian studies by Poulsen et al., (2007, 2008) found a strong positive correlation between loneliness and DCD in boys aged between 10 and 13 years compared to boys without DCD. One feature of this condition is reduced motor skills, and Poulsen et al, (2008) found that those with a higher score on motor ability reported lower levels of loneliness and increased life satisfaction. This suggests that motor skills and functional ability may be positively associated with reduced levels of loneliness. It should be noted however that both these studies were cross sectional, participants were only representative of

middle to higher socioeconomic backgrounds and data collection included a 12 month retrospective recall from parents which may introduce bias.

Both Boland et al. (2019) and Hanne et al. (2018) refer to loneliness and social isolation associated with cancer. Boland et al (2019) reports that cancer survivors experience enduring symptoms such as fatigue, pain and anxiety which reduce social participation whilst Hanne et al (2018) state that those with advanced cancer are isolated whilst living at home due to progression of their symptoms which increasingly encroach on participation and engagement.

Living with a mental health condition may also lead to loneliness and social isolation. For example, a UK study by Makdisi et al. (2013) recruited predominantly male participants and was interested in the lived experience of people diagnosed with psychosis. This study demonstrated that isolation and a reduced social network were linked to increased feelings of loneliness. Roy et al. (2009) conducted a small scale qualitative study which considered the perspectives of young adults diagnosed with recent-onset psychosis. Here, factors such as difficulty or change within relationships; changes to living arrangements; cessation of work or education; reduced energy levels and stigma enhanced feelings of loneliness. Siemon et al. (2013) reported on mental health issues associated with HIV, here reduced levels of engagement, diminished social support networks, anxiety about relationships, physical appearance and employment were linked to isolation.

Communication difficulties:

Natterlund (2010) carried out a qualitative Swedish study where adults diagnosed with expressive dysphasia reported increased feelings of social isolation due to communication problems which lead to difficulty maintaining existing relationships and establishing new ones. Similarly autism, which is characterised by communication deficit, is

associated with increased levels of social isolation where young adults with ASD are significantly more likely to not have friends, to never be invited to take part in activities and to be socially isolated compared to young adults with other conditions (Orsmond et al., 2013). Individuals with ASD were reported as significantly more likely to be socially isolated compared to other groups due to limited conversational skills, living in the parental home and reduced functional skills. Such findings suggest that communication skills and strategies to support individuals who experience difficulty with communication are of real importance.

Age:

A number of studies further illustrate that ageing is associated with increased loneliness and social isolation. For example, Stanley et al (2017) found that more time spent alone was associated with increased loneliness and reduced physical and mental health for older people. Whilst Hand et al (2017) present multiple dimensions of social isolation for older adults who reported diminished social networks, due to reduced health and limited access to transport, and a desire for more social interaction and engagement. Pritchard et al. (2015) report that higher levels of participation are associated with lower age, and that untreated depression in older people may lead to reduced participation in daily activities and in turn social isolation. Taylor et al. (2016a) report on the occupational role experiences of custodial grandparents and the impact upon mental wellbeing. This Australian based qualitative study interviewed 49 custodial grandparents (mainly women) and found that social isolation and loneliness were experienced when grandparents were no longer able to engage with their peers in age related activities. Taylor et al. (2016b) investigated social isolation in older residents of low-income housing. Older residents of the housing scheme rated themselves as more isolated than did staff, and those individuals considered by staff as likely to be significantly isolated were less likely to participate in the study. These findings

may demonstrate that when older people feel lonely, they are less likely to participate which may exacerbate a sense of loneliness.

Stigma:

Stigma is apparent for people living with psychosis, who experience stigma at a social level, from service providers and self-stigma, all of which increased feelings of exclusion and isolation (Makdisi et al., 2013). Roy et al. (2009) also found that stigma associated with mental health was linked to feelings of social isolation, and Natterlund (2010) makes reference to people staying away from individuals who have aphasia, which increased their sense of isolation. Siemon et al. (2013) found that women with HIV may experience stigma on account of their gender, sexual orientation, increasing age and HIV status, which can promote a sense of isolation and loneliness. Blanche et al.'s (2015) small scale qualitative study explored the experience of Latino parents, predominantly mothers, of children with ASD. The findings suggest that parents have to deal with stigma associated with the condition of ASD within their community, which can change patterns of social interaction and result in isolation. This is further intensified if mothers give up work to provide full time care and illustrates the impact of loneliness upon family and carers.

Factors that protect against the impact of loneliness and social isolation:

Finances:

This review suggests that a range of factors, including finances, can protect against loneliness. Ashby et al. (2012) found when the men in their study did not work, they had limited financial resources, reduced social/leisure occupations and felt lonely whilst those in Goods and Millstead's (2016) study were concerned that a lack of finances would limit their engagement in their leisure occupations and result in loneliness in retirement. Similarly Hand

et al (2017) associated a lack of finances as a barrier to social engagement and therefore as a risk factor for loneliness.

Social networks:

A number of studies established a link between a lack of social networks and loneliness, for example, Barclay et al. (2019) note that a lack of social and community engagement was linked to loneliness and social isolation for people with non-traumatic spinal cord injury, it is likely therefore that access to positive social networks will help negate feelings of isolation. According to Makdisi et al. (2013) people diagnosed with psychosis felt isolated from their social networks and relationships with parents and family were supportive for some participants yet were a source of stress for others. Natterlund (2010) also makes links between a loss of friends, diminished social networks and feelings of loneliness, whilst Blanche et al. (2015) and Goods and Millstead (2016) add loss of work contacts as a cause of loneliness. Siemon et al. (2013) also refer to the relevance of work related social contact. This study noted the positive aspects of social participation and made comment that a worker/ volunteer role was a positive means of social contact. According to Taylor et al. (2016a) social contact with other people in a similar position to themselves was useful to custodial grandparents who were no longer able to engage in peer related leisure activities and social networks, alongside medication from the GP and counselling services. Similarly Boland et al. (2019) found support from peers helped reduce feelings of stigma, loneliness and social isolation for cancer survivors.

Meaningful occupations and engagement:

The value of engagement with meaningful and purposeful occupations is apparent in the literature, which is a key precept of the profession of occupational therapy (RCOT, 2017). For example, Hanne et al (2018) found that engaging in meaningful occupations enhanced

quality of life and a sense of belonging for people with advanced cancer and Boland et al (2019) reported that participation in an occupation-based group programme that included individualised client centred goal setting was considered a positive and appropriate intervention as part of cancer survivorship.

Stanley et al. (2017) claim that when older people have a balance of engagement in meaningful occupations both at home and in the community, they are better able to manage time alone and avoid loneliness which is linked to ill health. Arthanat et al., (2016) aimed to evaluate the effectiveness and perceived value of an individualised home based Information and Communication Technology (ICT) programme for older adults. This mixed methodology study included 13 participants, mainly women, and reported a statistically significant increase in the total number of ICT activities, particularly leisure, and a modest but non-statistical increase in social based ICT activities. A further finding was that ICT has the potential for mediating feelings of social isolation and loneliness via the use of social media.

When there is disruption to a worker role and reduced engagement with family routines (Blanche et al., 2015), this can result in loneliness. According to Siemon et al. (2013), the value of a work, volunteer, or care role is protective against feelings of social isolation and loneliness. Pritchard et al. (2015) demonstrated lower levels of depression in older people living in the community when they had higher rates of participation in household activities of daily living and recreation, whilst Makdisi et al. (2013) note that engagement in meaningful occupations is considered essential to mental health and wellbeing.

An ability to utilise motor skills is also referred to as a factor that can support social engagement and therefore reduce social isolation. Poulsen et al., (2007) claim that boys with DCD who engage in team sports may experience reduced loneliness, and in a 2008 study with

the same participants, an increased score on motor ability was associated with a reduced total loneliness score and increased life satisfaction. Pritchard et al. (2015) similarly links increased participation in activities of daily living such as housework, shopping, meal preparation and recreation for older people with lower reports of depression. It may be that to actively engage in such activities, some degree of physical skill or function is required, however the authors suggest that undiagnosed depression may lead to lower rates of participation and therefore increased loneliness. This could mean that depression, rather than limited physical mobility, inhibits engagement although this study is not able to provide detail on the possible explanations.

Services provider awareness of loneliness and social isolation:

There are calls for appropriate services within the literature and perhaps the first consideration is that service providers need to be aware of loneliness and social isolation. This is demonstrated by Taylor et al. (2016b) where staff significantly underestimated the levels of social isolation for older adults, compared with self-reports of the residents themselves. Apart from being aware of the negative impact social isolation and loneliness may have upon the health and wellbeing of individuals across the life course, there is a call for services to be culturally sensitive and provided in a timely manner (Blanche et al. (2015). Services should also consider contextual influences and individual needs (Siemon et al., 2013). This call for the appropriate fit of service to individual need is highlighted by Taylor et al. (2016a) in relation to custodian grandparents, by Packer et al. (2012) in terms of self-management programmes for long term conditions and from Poulsen et al. (2007) in reference to the needs of boys with DCD. Services also need to be available and accessible at an appropriate time for particular service user groups, for example early provision to young adults with ASD who are at risk of isolation in later life (Orsmond et al., 2013).

Barclay et al. (2019) and Hand et al. (2017) specifically refer to the role of occupational therapists as service providers in the context of loneliness. Barclay et al (2019) claim that occupational therapists can make a positive contribution to people with non-traumatic spinal cord injury by supporting the acquisition of new roles, routines and social networks to avoid social isolation, whilst Hand et al. (2017) state that occupational therapists have a role in policy and practice development to support social participation, engagement and network development for older people.

Discussion

Although loneliness and social isolation are associated with reduced health and wellbeing particularly in the older population (Age UK, 2012; WHO, 2017) the findings of this review illustrate that loneliness and social isolation affects people across the lifespan and can occur as a result of physical and mental health conditions. Additional risk factors may include communication difficulties, age, stigma and a lack of engagement in meaningful and purposeful occupations.

Occupational therapists focus upon meaningful and purposeful activities and the acquisition of valued roles such as worker, volunteer or friend (RCOT, 2015, 2016-2018, 2019). This review illustrates these as ameliorating factors that can reduce the impact of loneliness and social isolation. Also of importance is the profession's concern with social inclusion, engaging people with community networks and the value of positive social interaction which could help reduce loneliness and social isolation (Stav et al., 2012; Turcotte et al., 2018). As occupational therapists work across health and social care with people of all ages they are uniquely placed to tackle loneliness and social isolation in individuals and communities (RCOT, 2015). For example, RCOT (2019) suggest that occupational therapists can act as a link between primary care and the voluntary sector working with service users to

develop occupational roles and social connections. This corresponds with approaches to tackle loneliness and social isolation as recommended by the Department for Digital, Culture, Media & Sport (2018). Occupational therapists need to consider addressing loneliness and social isolation as part of their professional remit, be this when working with individual service users or at a wider community or strategic planning level. Within their role, they are well placed to signpost service users to befriending organisations and social or community groups that can be effective when they are collaborative and have meaning and purpose to the individual (Windle, Francis and Coomber, 2011; Hanne et al., 2018). It is also important that there is an appropriate fit between group provision and individual needs (Taylor et al., 2016b). In a recent randomized control trial to improve self-efficacy for people with Multiple Sclerosis, Tamar Kalina et al. (2018) found that a 12 week group programme of educational and social components reduced perceptions of loneliness. This may link to the reported value of acquiring new roles and routines in response to loneliness related to disability or changes in health status (Barclay et al., 2019; Hand et al., 2017) all of which is integral to the role of the occupational therapist. The literature similarly refers to the value of supporting people to develop work, volunteer and leisure roles that again have personal meaning as a strategy to manage loneliness (Siemon et al., 2013; Taylor et al., 2016a).

The findings of this review also indicate that in order to manage loneliness and social isolation, services need to be timely, culturally sensitive, and meaningful and purposeful to the individual (RCOT, 2017). Previous research however suggests that professionals, including occupational therapists, may not see the management of loneliness as a part of their remit or as a priority (Chana et al., 2016; Turcotte et al., 2018) and to date frameworks that encompass loneliness and social isolation have focused on people with specific illnesses such as multiple sclerosis (Kalina and Hinojosa, 2016) and in particular settings such as community dwelling older adults (Papageorgiou et al., 2016). Furthermore

occupational therapists may implicitly address loneliness and social isolation in practice, but the existing evidence base is narrowly focused and current models of practice lack an explicit directive on these issues.

A limitation of this review is that that loneliness and social isolation are complex phenomena (Chana et al., 2016) and as such the key words used in the search strategy may not have captured literature that used different but connected terms, for example, social exclusion. However, the review has encapsulated a range of literature pertaining to different age groups, conditions and contexts which illustrate diverse and multiple perspectives on loneliness and social isolation.

Conclusions and significance

The findings of this review illustrate that loneliness and social isolation has a significant impact on the health and wellbeing of the people occupational therapists work with. This gives rise to implications for occupational therapy practice, including the recognition and assessment of loneliness and social isolation, and interventions to help prevent loneliness and social isolation. It is recommended that further empirical research is conducted with occupational therapists and the people they work with in order to address this important area.

Key points

- Loneliness and social isolation has an impact on the health and wellbeing of the people occupational therapists work with.
- Engagement in occupations, group activities, roles and routines that have value and meaning to an individual have been linked to a reduction in loneliness and social isolation.
- Occupational therapists are well placed to tackle loneliness and social isolation and need to consider this as part of their professional remit.

- Further empirical research needs to be conducted with occupational therapists and the people they work with.

Reflective questions:

- In what ways do loneliness and social isolation impact on health and wellbeing?
- What types of interventions may help alleviate loneliness and social isolation?
- How can these interventions be implemented in practice, what are the opportunities and challenges?

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Table 1: key search terms

Aloneness Or Lonel* Or Alienation Or Solitude Or Friendless Or Remoteness Or	And occupation* or Therapi* or Therapy*

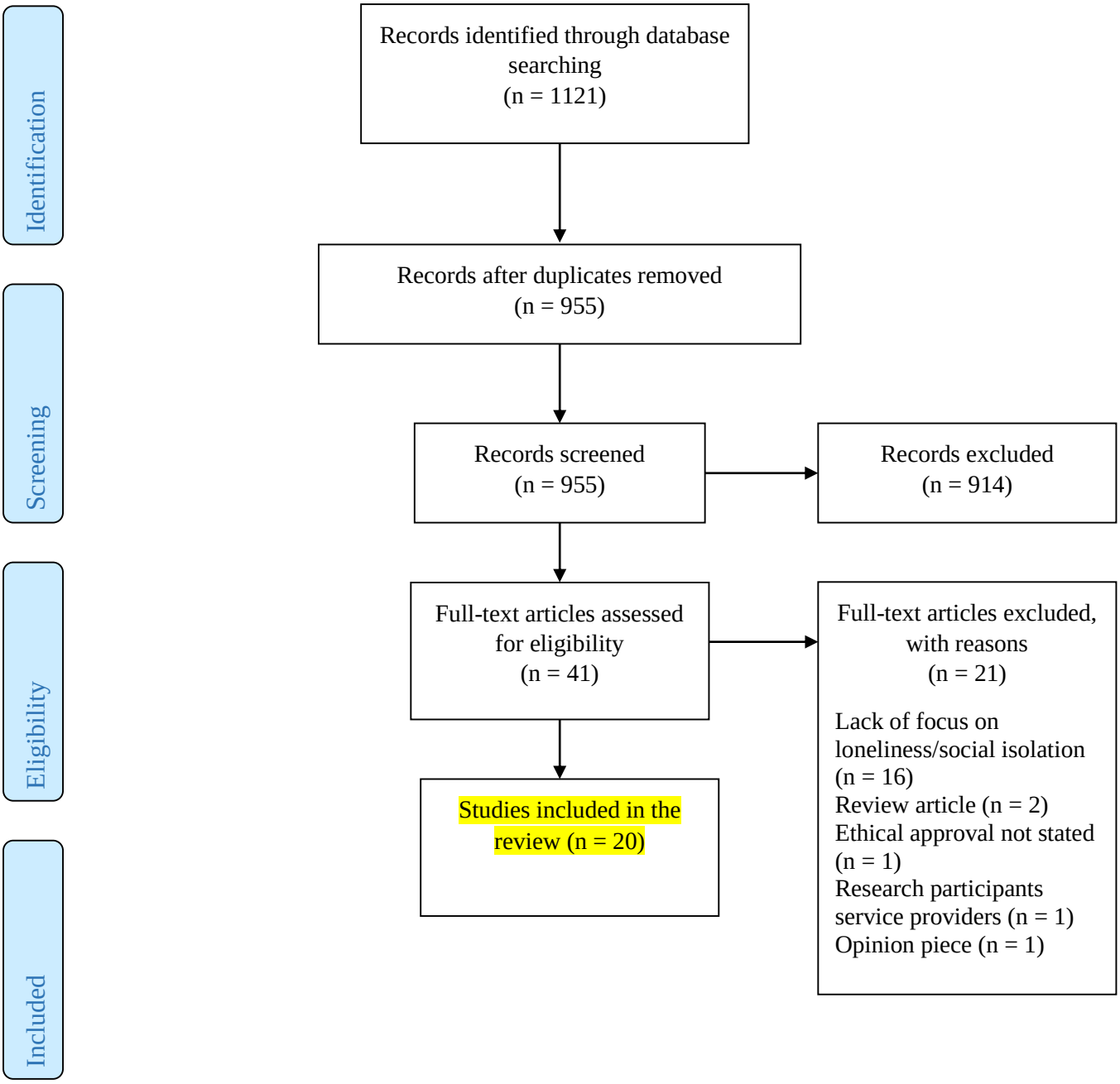

Figure 1: PRISMA 2009 Flow Diagram showing selection of articles for review

Table 2: overview of included studies

Author, year, journal article and country	Study aim and design	Sample characteristics	Key findings	Strengths / limitations
Qualitative articles				
Ashby, S., Fitzgerald, M., Raine, S. (2012)	To examine difficulties experienced by men with chronic low back pain in the maintenance of leisure activities and the connection between leisure and social networks. Ethnographic study Participant observation and semi-structured interviews. Thematic analysis.	11 working class men from New South Wales involved in a vocational rehabilitation programme aged 23 to 59 years. Unemployed 8 months to 7 years. All had chronic low back pain.	Chronic low back pain has a critical impact on leisure occupations. Barriers to engagement in leisure include physical and financial restrictions. These barriers led to reduced engagement in social networks.	Good ethical considerations. Reflexivity and triangulation used. Rich data from ethnography. Provides an occupational therapy perspective. Under researched topic. Unclear how many semi-structured and ethnographic interviews took place. Rationale for having two types of interview is not given. Small sample size limits generalisability. All working class men. Australian context.
Barclay, L., Lentin, P., Bourke-Taylor, H., McDonald, R. (2019)	To explore the experience of returning to community and social participation for people with NTSCI. Qualitative study using semi-structured interviews and thematic analysis.	17 participants living in the community with NTSCI, 8 women and 9 men. Average age at injury 55.8 years. Excluded people with brain injury / intellectual disability. Time since onset of	Three main stages emerged regarding return to community and social participation for people after NTSCI: Withdrawal includes staying home, loss of independence and social contacts /loneliness Re-emergence into society includes going out, finding new roles and	Includes questions from interview guide. Field notes were taken during and after interviews and reflective diaries were maintained. Peer review was maintained throughout the research process. An audit trail was maintained. Participant quotes supported themes. Consideration of the OT role in practice was presented. Purposive sampling was utilised

		injury ranged for less than 2 years (4 participants) to more than 10 (2 participants). There was a range of causes of NTSCI and a range of employment backgrounds.	social networks and Stability. OT`s can support people with NTSCI by use of achievable goal setting, activity analysis, environmental/activity modification and assistive technology.	There was a broad range in participant age, employment history, type and cause of injury and time lapse since injury which may impact findings. Member checking was modified in the form of a general newsletter. Reduced detail of the analytical process presented.
Blanche, E., Diaz, J., Barretto, T., Cermak, S. (2015)	To understand the caregiving experiences of Latino families of children with ASD. Descriptive qualitative design. In-depth semi-structured interviews. Thematic analysis.	15 Latino parents of children aged 3–8 years with ASD. 12 mothers, 3 fathers living in the USA.	Themes identified relate to: diagnosis, stigma, the role of mothers and utilising services. Stigma led to changes in social practices resulting in isolation. Many mothers stopped work, which may have increased isolation.	Ethical, detailed study. Four interviewers were bilingual and bicultural. Triangulation and reflexivity evident. Multiple analysis by researchers at stage 2. Sample largely female. Small sample size limits generalisability. Not all interviews recorded. Lacks clear description of initial coding scheme.
Boland, L., Bennett, K., Vuffe, S., Gleeson, N., Grant, C., Kennedy, J., Connolly, D. (2019)	To explore the perspectives of cancer survivors on the impact of the OptiMal intervention on their activities of daily living and their view of its value.	26 participants (predominantly women) aged between the ages of 18-80 (mean age 52.7. 17 participants had breast cancer. Recruited from	Themes identified include: Supporting transition to survivorship (sub themes: reduced support post treatment, support from peers, symptom management, adjustment to survivorship) and	Occupation focused intervention NVivo 10 and thematic analysis utilised Peer review of thematic analysis undertaken. Focus groups conducted by an independent party. Focus groups and interviews used the same question guide. Significant use of participant quotes.

	A qualitative descriptive design was utilised using focus groups and semi-structured interviews. Data was analysed using NVivo10 and thematic analysis were employed.	one oncology department in Ireland. Participants were between 3 months and 2 years post-cancer treatment.	Programme design and delivery (sub themes: groups cohesion and learning, length and content, goal setting, timing, recommendations)	Large age range. Does not state how many men were involved in the study just that is was predominantly women. The OptiMal tool is adapted from the Stanford Chronic Disease Self-Management Programme and therefore is not standardised. 3 months follow up for inclusion in the study is a short time period. At 3 months follow up after completion of the OptiMal, 6 participants were unable to attend the focus group and therefore took part in semi-structured interviews which could lead to bias. Data from 1 hospital in Ireland.
Goods, N., Millsteed, J. (2016)	To understand how ageing employees with disabilities perceive retirement, and change to occupational roles. Qualitative exploratory study. Semi structured interviews. Data analysis included NVivo 10.	10 participants; 6 men and 4 women aged 43-69 years. Moderate to severe disability reported. Worked for an Australian Disability Enterprise (due to retire in 2-3 years).	Participants anticipated retirement to be boring, meaningless and lonely. Concerns included: loss of work-related friendships, limited networks, loss of finance which would impact on leisure.	Detailed, ethical, transparent. Interview guide piloted. Small scale Australian study limits generalisability. Participants were anticipating retirement rather than experiencing it. Seven participants lived alone which may have influenced results. Wide range of hours worked (8-38.5 per week) and time in setting (7-38 years).
Hanne, P., Nissen, N. Brandt, A., La Cour, K. (2018)	To gain a deeper understanding of perceived quality of life	9 participants from a previous cross sectional	4 elements of belonging were associated with quality of life:	Combined data collection techniques of interviews and photo-elicitation at two

	and belonging for people living at home with advanced cancer. A qualitative study using semi-structured interviews and photo-elicitation techniques. Data was analyzed thematically using an iterative process.	study of 73 participants. Age range 57-85 years, 4 men 5 women living at home or in sheltered housing with different types of cancer and estimated life expectancy of 4 months.	Social belonging with people participants felt close to, spatial belonging where participants may feel supported or isolated by the home environment, belonging through spiritual or existential contemplation and belonging through artefacts such as pictures, ornaments, letters and crafts.	different times may be considered as triangulation. Clear links between the foundation principles of occupational therapy as a profession and the aim of the study. Pilot study carried out prior to main data collection which generated modification to the questions asked. Presentation of participant quotes to support emergent themes. Audit trail and member checking was utilised. Peer review of themes was undertaken. Small convenience sample in the last few months of life may bias results and saturation not reached. Translation of participant quotes from Danish into English could negatively impact trustworthiness. A range of types of cancer were reported which may influence findings. Some participants lived alone whilst others lived with a spouse which may influence findings. Danish health and social setting may not translate to other cultures.
Makdisi, L., Blank, A., Bryant, W. (2013)	To explore what is helpful in the daily lives of people experiencing the effects of psychosis.	13 people with experience of psychosis. 8 men and 5 women aged	6 elements of the self were highlighted: the social self, the occupational self and the	Detailed, transparent, ethical study. Service users involved in all aspects of the research.

	Qualitative exploratory study. Participatory design Two focus groups. Data analysis based on grounded theory.	18-70 years from a range of ethnicities using adult mental health services within the preceding 5 years.	integrated self were facilitators to living with psychosis. The unsupported self, the stigmatised self and the isolated self were barriers to living with psychosis.	Sensitive to the context of living with psychosis. Small sample size and single context limits generalisability.
Natterlund, B. (2010)	To describe the experiences of everyday activities and social support for people who are aphasic. Descriptive design. Qualitative interviews. Data analysis included NVivo2.	20 people with aphasia (14 men and 6 women) aged 32-70 years. Diagnosed with expressive aphasia for at least 2 years. Participants known to a specific rehabilitation centre.	Three themes identified: life situation today; social support in daily life; social life at present. Loneliness and social isolation are linked to aphasia.	Interviewer experienced in the field of aphasia. Detailed analysis of the data. Largely male sample in one Swedish setting limits generalisability. Interviewer known to three participants. Did not report the level of aphasia. Varied living arrangements may have influenced results. Range of years between diagnosis and interview was between 3-11 years.
Roy, L., Rousseau, J., Fortier, P. (2009)	To explore the competence and handicap-creating situations perceived by young adults with recent-onset schizophrenia in their	19 young adults with recent-onset schizophrenia aged 18-30 years. 16 male and 3 female. Experience of psychotic	Participants perceived more handicap-creating situations than competency situations in the roles of son / daughter and friend, and within education and work settings which	Analysis included three reviewers and peer debriefing. Use of reflexivity and data saturation. Largely male sample One Canadian setting limits generalisability. One interview not recorded.

	daily roles and activities. Multiple case study design using a questionnaire and semi-structured interviews. Data analysis included NVivo2.	symptoms for less than 5 years.	contributed to feelings of isolation.	Limited range of roles and activities were analysed. Perspectives of family, friends and clinicians not captured.
Siemon, J., Blenkhorn, L., Wilkins, S., O'Brien, K., Solomon, P. (2013)	To develop a theoretical model related to social participation from the perspective of older women living with HIV. To inform occupational therapy practice and enhance social participation. Grounded theory approach. Interviews (face to face or telephone) Data analysis included NVivo8.	20 women living with HIV aged 52-58 years (19 born female, 1 male-to-female transgendered). Participants varied in ethnicity, employment status and time since diagnosis (5–19 years).	Four concepts related to social participation emerged: social engagement; social isolation; contrasting perceptions and contextual influences. Social participation was shown to vary on a continuum from isolation to engagement.	Analysis conducted by multiple authors. Detailed, rigorous and ethical. Lack of theoretical sampling. Small Canadian sample limits generalisability. Varied interview method may have influenced findings. Participants recruited through known services which may influence results.
Stanley, M., Richard, A., Williams, S. (2017)	To explore the perspectives of older people regarding time spent alone. A qualitative descriptive design using semi-	12 participants aged between 66 and 92 years. 3 men and 9 women. All were community dwelling. 5 in retirement villages	3 key themes were generated: A matter of balance: participants reported that time alone can be positive and restorative yet a sense of connection	All researchers were qualified occupational therapists and so shared professional concepts. Prior to interview, participants were asked to keep a diary to prepare for the interview. Questions asked were based in the literature. A pilot interview was carried out.

	structured interviews and time diaries. Data was analysed thematically using an approach advised by Sandelowski (2000).	and 7 living independently in the community within a metropolitan area of Australia. Participants were recruited through an older people's service providers and researcher networks.	to others was important to mediate time alone. Keeping busy: engagement in meaningful occupations was important in managing time alone Night time: is the most difficult time to be alone and can increase feelings of loneliness.	A reflexive journal was utilised to support audit and understanding of the research process. Member checking was carried out. Participant's quotes supported themes. Small purposive sample size of 12 participants, mainly female and wide age range could lead to bias. Participants recruited through 1 care provider and researcher networks. Limited cultural and geographical diversity of participants. Australian health and social care setting.
Taylor, M., Marquis, R., Batten, R., Coall, D. (2016)	To explore the daily occupational role experiences of custodial grandparents and their mental well-being. Qualitative design within the symbolic interactionist tradition. Semi-structured interviews using a range of methods. Thematic analysis.	49 custodial grandparents (9 men and 38 women) aged 41-69 years recruited via three non-government organisations. Number of grandchildren cared for ranged from 1-5.	Four key themes emerged: grandparents negative states of mind; social isolation; psychological struggle and reaching for help. Custodial grandparents experience acute isolation and loneliness. Grandparent support groups were valued.	Piloted interview schedule. Analysis conducted by multiple authors. Remote living grandparents participated. Large sample size for qualitative study. Varied administration of interviews could impact results. Only 10% of transcripts checked against audiotapes.

Quantitative articles				
Hand, C., Retrum, J., Ware, G., Iwasaki, P., Moaalii, G., Main, D. (2017)	To describe dimensions of social isolation for older adults living in ethnically, socially and racially diverse urban settings and to examine factors such as income, family situation, health and transportation with social isolation. Data was collated from a cross sectional survey using a door to door community-based participatory approach within 5 demographically diverse neighbourhoods. Questions related to social isolation /connectedness, loneliness, satisfaction with frequency of social activities, demographic information, access to transportation and access to information.	164 surveys were completed from adults aged 50 and above living in the community. 62%female respondents.	24% of participants reported social isolation in relation to small social networks and wanted more social engagement. Participants aged 50-64 noted highest levels of isolation. Factors such as reduced health, finance, and reduced access to transport and information were linked to isolation.	Utilised a community-based participatory research approach to support inclusivity and relevance to the local community. Collaborative research approach with citizens. A range of validated measures were incorporated, the 6 item Lubben Social Network Scale-Abbreviated, Revised University of California, Los Angeles Loneliness Scale. Neighbourhoods were demographically diverse in terms of age, ethnicity, and economic perspective. Small sample size for a quantitative study. 62% of participants were women, 61% were aged 50-64, 54% were White/Caucasian and 84% usually could access places they wanted to go. All of this could introduce bias. Descriptive statistics provide a less detailed means of analysis. US context may not apply to other health and social care settings.

	Descriptive statistics were used to analyse the data.			
Orsmond, G., Shattuck, P., Cooper, B., Sterzing, P., Anderson, K. (2013)	To explore the rates of participation among young adults with ASD, how these rates compare to young adults with other types of disabilities and the personal/contextual factors associated with limited social participation. Data was extracted from the National Longitudinal Transition study-2 that collected data in 5 waves. Telephone surveys with parents/young adults. Descriptive and inferential statistics were used to compare groups.	620 young adults aged 21-25 years old with ASD, intellectual disability, emotional disturbance and learning disability (85% males, 15% female)	Young adults with an ASD were significantly more likely to never see friends, never get called by friends, never be invited to activities, and be socially isolated. Among those with ASD, lower conversational ability, lower functional skills, and living with a parent were predictors of reduced social participation.	Data collected from a large nationally representative US cohort study. No measures of the size or composition of friendship networks. No information about the participants' satisfaction with their social participation. Lack of data on the availability of services and activities. Largely white, male sample. Does not state how many parents/guardians versus young people were interviewed which may impact upon findings.
Packer, T., Boldy, D., Ghahari, S., Melling, L. Parsons, R., Osbourne, R. (2012)	To investigate the impact of generic and diabetes-specific self-management programmes.	458 participants. 236 with a generic chronic condition and 222 with diabetes.	GP referral was the least effective recruitment strategy to programmes. Participants on the two programmes differed	Ethically sound Reliable measures utilised. Attrition rate at post-test 25.3% and at follow-up 23.4%.

	Quasi-experimental design (pre-test/post-test) with 12-week follow-up to compare two programmes. Self-report questionnaires. Statistical analysis using SPSS 17 and SAS version 9.1, Chi-square and independent t-tests.	Ages ranged from 27-92 years.	significantly on most demographic variables and measures at baseline apart from social isolation. Both groups presented statistically significant improvements in self-management knowledge and skills. Neither group demonstrated improvements in health related quality of life or reduced social isolation and loneliness. Reduced social isolation was a significant predictor of improved self-efficacy and health related quality of life.	Results demonstrate that mechanisms for change are complex. Future analysis using structural equation modelling is needed to further understanding of how self-management programmes work.
Poulsen, A., Ziviani, J. Cuskelly, M., Smith, R. (2007)	To describe the psychosocial self-perceptions of loneliness and leisure participation for boys with and without DCD. Identify leisure activity participation contexts	60 boys with DCD and 113 boys without DCD aged 10-13 years. Boys were without Aboriginal or Torres Strait Islander heritage	Boys with DCD experienced greater loneliness than boys without DCD. Strong positive correlations were found between DCD and loneliness.	Authors experience in their field. Reliable measures used. Cross sectional design cannot test direction of effect. Non-representative sample. Retrospective 12-month leisure survey relies on parents' recall and perspective.

	associated with adaptive outcomes for boys with different levels of physical coordination. Investigate occupational performance processes related to physical coordination and loneliness. Exploratory cross sectional design with 4 groups of boys using set measures, leisure time dairies and a retrospective survey. Descriptive and inferential statistics to analyse results.	and were from middle to higher economic backgrounds.	Participation in social/physical activities was less for boys with DCD compared with boys without DCD. Team sports participation was the only activity context that significantly mediated the relationship between loneliness and physical coordination ability.	
Poulsen, A., Ziviani, J., Johnson, H., Cuskelly, M. (2008)	To test a model where links between child characteristics, intrinsic motivation to participate in leisure activities, leisure activity participation time use, and adjustment pathways are explored. Exploratory cross sectional design with	173 Australian-born primary school-aged boys aged 10-13 years. Boys were without Aboriginal or Torres Strait Islander heritage and were from middle to higher economic backgrounds.	A higher score on the motor ability variable was linked to a lower score on the total loneliness measure and a higher score on the life satisfaction measure. A higher score of motor ability was linked to a higher score on the perceived freedom of leisure measure.	Authors experience in their field. Reliable measures used. Participation in team sports may be influenced by other factors such as social/ environmental influences. Non-representative sample. Retrospective 12-month leisure survey relies on parents' recall and perspective. Does not specify which reports teachers completed.

	4 groups of boys using set measures, leisure dairies and a retrospective survey. Path analysis of data using AMOS to test theoretical model hypothesised.			
Pritchard, E., Barker, A., Day, L., Clemson, L., Brown, T., Haines, T. (2015)	To investigate factors that may impact on participation of older community dwelling adults with consideration of demographic, physical and mental health factors. Second phase of a cohort study. Cross-sectional design. Telephone interviews using a range of assessments and scales. Descriptive and inferential statistical analysis using STATA 11.2.	244 older adults living in the community in Australia aged 70-91 years. 60% female /40% male. 49% lived alone.	Most frequently performed activities were light housework, meal preparation and shopping. The most frequent recreation activities were gardening and walking. Higher levels of participation were associated with a lower age and more falls over the last 12 months. Older adults with higher levels of depression had lower levels of participation in household and recreation activities.	Clear and detailed article. Convenience sample may have contributed to bias. Inclusion criteria for speaking English may have contributed to bias. Retrospective self-report may lack accuracy.

Taylor, H., Herbers, S., Talisman, S., Morrow-Howell, N. (2016)	To test strategies to identify socially isolated residents in low-income senior housing via a self-report and staff-report. To compare the findings from these two strategies. Residents completed self-report scales related to social isolation and loneliness. Staff completed an online survey on their perception of isolation for all residents. Descriptive statistics were used to analyse results.	135 older residents living in a senior housing complex in the USA. 47 out of the 135 residents completed the interviews and scales.	Self-report by residents: 26% were deemed socially isolated by the LSNS-6. Staff-report on residents: 12% rated as having some or a lot of social isolation. Residents who participated in the interviews self-rated their social isolation higher than did staff. Residents with higher levels of staff-rated isolation were less likely to participate in the interviews.	The combination of staff reports of isolation and self-reports may be more informative than one report alone. The use of scales may help practitioners identify residents who may need social support. Few sample details are provided. Low response rate (35%) to self-report scales. Study conducted in one setting limits generalisability. Use of descriptive rather than inferential statistics. Financial incentive to take part. Results do not refer to the Hughes 3-item loneliness scale.
Mixed methodology articles				
Arthanat, S., Vroman, K., Lysack, C. (2016)	To ascertain the effectiveness and perceived value of an individualized home-based ICT programme for older adults.	13 older adults, 12 female and 1 male aged 62-83 years. Recruited through an Aging and Disability Research Centre.	A statistically significant increase in total ICT activities, particularly leisure. A modest but non-statistically significant trend was found in	The mixed methods provide multiple perspectives. The potential for mediating loneliness and isolation (via social media, chat rooms) was highlighted. Small mainly female sample.

	A mixed methods pilot study (precursor to a longitudinal RCT). Quasi-experimental repeated measures design. End of study questionnaire. Descriptive and inferential statistics (quantitative). Content analysis (qualitative).		activities involving social connections. Themes identified included: benefits such as learning from an ICT aware generation, and communicating with distant family. Challenges included: difficulties in using ICT and the need for more frequent home visits.	Limited generalisability. Participants were mostly healthy with a basic knowledge of ICT. Financial incentive to take part. Reference to a focus group in the methods but no further detail provided.

Table 3: themes identified in the review

• **Loneliness and social isolation are detrimental to health and wellbeing**
• **Factors associated with increased loneliness and social isolation:** ○ Physical and Mental health conditions ○ Communication difficulties ○ Age ○ Stigma
• **Factors that protect against the impact of loneliness and social isolation:** ○ Finances ○ Social networks ○ Meaningful occupations and engagement ○ Services provider awareness of loneliness and/or social isolation